Date: Thu, 4 Nov 93 14:00:05 PST
From: Info-Hams Mailing List and Newsgroup <info-hams@ucsd.edu>
Errors-To: Info-Hams-Errors@UCSD.Edu
Reply-To: Info-Hams@UCSD.Edu
Precedence: Bulk
Subject: Info-Hams Digest V93 #1310
To: Info-Hams

Info-Hams Digest   Thu, 4 Nov 93   Volume 93 : Issue 1310

Today's Topics:

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu>
Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: Thu, 4 Nov 1993 16:41:22 GMT
From: amd!amdcl2!brian@decwrl.dec.com
Subject: "outdoor antenna" ban
To: info-hams@ucsd.edu

In article <JF7gcc1w165w@sytex.com> jim@sytex.com (Jim Arnold) writes:
> I live in an apartment co-op that doesn't allow antennas.
>
> Well, its just a temporary antenna at that, and no worse
> than someone hanging a power cord out their window to
> vacuum their car!
>
> Any hints and tips?

Vacuum often and tune the power cord? :-)

    Brian McMinn

Date: 4 Nov 93 18:55:40 GMT
From: ogicse!emory!sol.ctr.columbia.edu!usenet.ucs.indiana.edu!
silver.ucs.indiana.edu!djadams@network.ucsd.edu
Subject: 10m Mobile
To: info-hams@ucsd.edu

Greetings! As the 10m band closes people are selling off 10m equipment
dirt cheap. I've been wanting to get a 10m all-mode mobile and can now get
one cheaply. Now, what I want to know is if during this low, 10 m
will be a useful thing to have in the car...not for dx obviously, but
it seems that local communication is still doable (like 2m). Any
comments, criticisms, advice, flaming branding irons?

73 de dave, N9uxu

Date: 4 Nov 93 20:29:27 GMT
From: sdd.hp.com!col.hp.com!srgenprp!alanb@hplabs.hp.com
Subject: characteristic impedance
To: info-hams@ucsd.edu

Gary Coffman (gary@ke4zv.atl.ga.us) wrote:
: In article <claude.752056704@bauv106> claude@bauv.unibw-muenchen.de (Claude
Frantz) writes:
: >What is the prefered method to measure the characteristic impedance
: >of a coax line ?

: If you're measuring at a relatively low frequency, there's another way.
: Just terminate the line with a variable carbon resistor, feed a wee bit
: of power up the line, and "dip" the SWR reading with the pot. The pot's
: value will be the line's characteristic impedance regardless of the
: meter impedance.

No it won't. Assume a 75 ohm line much less than 1/4 wavelength long.
If you try to measure it with a 50 ohm SWR meter, you will get lowest
SWR with a 50 ohm resistor termination.

If you use some other length of line, some other resistor value will
give lowest SWR, depending on the line length. For example, if the line
is 1/4 wave long, a 113 ohm resistor will read 1:1 on the 50 ohm SWR
meter.

I didn't understand Gary's other method, so I can't comment on that.

Here's a simple method that works. I assume the problem is: How to
measure the characteristic impedance of an unknown coaxial cable, using
only a transmitter and an SWR meter.

1) Cut the line to a length of 1/4 wavelength at the transmitter frequency.*
2) Connect a 50-ohm load to the far end of the cable.
3) Measure the SWR at the other end of the cable with a 50 ohm SWR meter.
4) Characteristic impedance = Zo = 50 * SQRT (SWR)

Example: SWR measures 2.25. Zo = 50 * SQRT (2.25) = 75 ohms.

The formula in 4) assumes the coax impedance is greater than or equal to
50 ohms. If not, then the formula is Zo = 50 / SQRT (SWR).

*Step 1) may appear difficult to do since, if you don't know the coax
impedance, you probably don't know the velocity factor either! To cut
the coax to 1/4 wavelength, first cut it a bit long and attach a "T"
coax connector to one end. Connect one side of the T to a receiver and
the other side to a signal generator or antenna (with on-the-air signals
present). The other end of the coax under test should be open.
Now simply trim the coax length for minimum signal in the receiver.
You should get a null at a length of 1/4 wavelength.

AL N1AL

Date: 4 Nov 93 18:27:15 GMT
From: ogicse!uwm.edu!linac!att!cbnews!wrb@network.ucsd.edu
Subject: Kenwood IF-232
To: info-hams@ucsd.edu

In article <199311041651.IAA14507@ucsd.edu> SHMC0874@BCIT.BC.CA (Colin Schmutter)
writes:
>I am trying to use software called KTWIN to control a Kenwood TS140S
>transceiver. However an interface from the receiver to the PC serial
>port is required. Kenwood produce one called an IF 232 but is quite
>expensive. I understand that is possible to "home brew" such an
>interface. Does anyone know if a circuit is available of an
>equivalent or if if a circuit is stored at an FTP site?
>Thanks.

Check out my article in the February 1993 issue of QST. I describe the
rig/computer interfaces in detail and provide complete plans for interfaces
for Kenwood, Yaesu, Icom, and Ten-Tec.

If you can't find it, e-mail me and I will see about sending you a copy of
the article.
--
   Wally Blackburn   Clinton-Gore - Socialist Leadership
   wrb@ccsitn.att.com   for the 90s!
   Amateur Radio Station AA8DX

Date: 4 Nov 93 21:01:08 GMT
From: news-mail-gateway@ucsd.edu
Subject: Message failed to FORUM.VA.GOV
To: info-hams@ucsd.edu

Your message 'Info-Hams Digest V93 #1297' was not accepted by FORUM.VA.GOV.
The error message was '7'.

Date: 4 Nov 93 18:10:25 GMT
From: news-mail-gateway@ucsd.edu
Subject: SAREX KEPS & UPDATE 10/28
To: info-hams@ucsd.edu

R:931103/0148Z @:VK1KCM.ACT.AUS.OC [Canberra, ACT] $:931028050312
R:931102/1100Z @:OH3RBR.#TRE.FIN.EU [Tampere] #:72363 Z:33720 $:931028050312
R:931102/0852Z @:OH6RBV.#VAA.FIN.EU [Vaasa] #:104613 FBB5.15 Bid:931028050312
R:931102/0835Z @:F6CNB.#SETX.TX.USA.NA [SugarLand] #:60679 Z:77478
R:931031/1459Z @:KB2EAR.NJ.USA.NA $:931028050312 #:3519 Z:08824 FBB5.15
R:931031/1418z @:W2XO.#SWPA.PA.USA.NOAM [Pittsburgh] O:ABFHB #:85467 Z:15044
R:931031/1219Z @:KA3RWP.#WPA.PA.USA.NA [VERONA,PA] #:52995 Z:15147 FBB5.15
R:931031/1112Z @:K3OIW.#WPA.PA.USA.NA [Independence Twp] #:54151 Z:15001 FBB5.1
R:931031/1004z @:K8LG.WV.USA.NOAM #:51657
R:931031/0935z @:WA8OMR.#NWV.WV.USA.NOAM Glendale, Wv. #:836 B:931028050312
R:931031/0539z 54955@WB8CQV.WV.USA.NA
R:931030/1600z 34858@KA8DRR.#SEOH.OH.USA.NA
R:931030/1552Z @:WA8GUG.OH.USA.NA Chillicothe #:23176 Z:45601
R:931030/1514Z @:N8GTC.#CIN.IN.USA.NOAM Brookville #:47346 Z:47012
R:931030/0718z 29215@W9OJ.IN.USA.NA
R:931030/0652z 22073@N5CEC.IN.USA.NA
R:931030/0540Z @:KK9G.#CEIN.IN.USA.NA [Indianapolis,In.] #:21727
R:931030/0537Z @:N5AAA.#CEIN.IN.USA.NA [Noblesville] #:35453
R:931029/1256Z @:KD9LP.#NCIN.IN.USA.NA [Amboy] #:26400 Z:46911 FBB5.15
R:931029/0636Z @:NU9H.#NWIN.IN.USA.NA [MIDWEST SATGATE] #:15967
R:931028/1900z @:WA8URE.#SWMI.MI.USA.NA Grand Rapids #:36038 Z:49508

SB SAREX @ AMSAT $STS-58.025

SAREX Keps & Update: 10/28

Thursday 10/28/93 @ 08:00 UTC

The last school group contact was completed yesterday. The Portsmouth HS in Portsmouth, New Hampshire had a telebridge contact using stations in California (Ralph Warner, N6MNN) and Texas (Bob Douglas, W5GEL). The students asked 5 questions during this bridge contact.

Hams across the U.S. and around the world continue to work the Shuttle Columbia on both voice and packet. Moreover, the completion of school group contacts has cleared several school backup passes for possible general QSO opportunities. While the SAREX Working Group cannot fully guarantee availability, there is a high probability that the STS-58 crew will be ready to take general calls over the continental U.S. on these passes. Two of these "scheduled" passes remain. These include orbit 178 at MET 11 days 1 hour 42 minutes (10/29 at 16:35 UTC) and orbit 192 at MET 11 days 22 hours and 29 minutes (10/30 at 13:22 UTC). Please note that the astronauts operated voice during yesterday's "scheduled" pass which occurred on 10/27 at 14:59 UTC (Orbit 145). Also note that hams on the ground heard or worked the Shuttle Columbia crew on several other orbits yesterday.

Element set GSFC-031, generated by Ron Parise, WA4SIR, is the official SAREX set for today. Please note that there is only a six second difference between element set GSFC-025 (released two days ago) and element set GSFC-031.

```
 STS-58
 1 22869U 93065A   93300.17699070 0.00133671  99048-5  24183-3 0   318
 2 22869  39.0252  71.9896 0012817  34.2105 325.9529 16.00500857  1383

 Satellite: STS-58
 Catalog number: 22869
 Epoch time:      93300.17699070         (27 OCT 93   04:14:51.** UTC)
 Element set:     GSFC-031
 Inclination:       39.0252 deg
 RA of node:        71.9896 deg          Space Shuttle Flight STS-58
 Eccentricity:    0.0012817                  Keplerian Elements
 Arg of perigee:    34.2105 deg
 Mean anomaly:     325.9529 deg
 Mean motion:   16.00500857 rev/day      Semi-major Axis: 6651.1630 Km
 Decay rate:       0.13E-02 rev/day*2    Apogee  Alt:        281.30 Km
 Epoch rev:             138              Perigee Alt:        264.25 Km


 NOTE - This element set is based on NORAD element set # 031.
        The spacecraft has been propagated to the next ascending
```

node, and the orbit number has been adjusted to bring it
into agreement with the NASA numbering convention.

Submitted by Frank H. Bauer, KA3HDO for the SAREX Working Group

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Date: 3 Nov 93 22:19:05 GMT
From: news-mail-gateway@ucsd.edu
Subject: SB nasa @ nasa < A66RMP $01H4GUVBLI2A
To: info-hams@ucsd.edu

R:931031/1033Z @:VE6MC.#EDM.AB.CAN.NA [EDMONTON, ALBERTA] FBB5.14b #:65700
R:931029/1959Z @:VE6JET.#ANDREW.AB.CAN [ANDREW, AB.] #:7371 Z:T0B0C0 FBB5.15
R:931028/1549Z @:VE6RDR.#RDR.AB.CAN.NA [Red Deer] #:33292 Z:T4N2E4 FBB5.15
R:931029/1336Z @:VE6YYC.#CGY.AB.CAN.NA [Calgary AB] #:45478 Z:T2P2J2 FBB5.15
R:931029/1246Z @:VE3KYT.#EON.ON.CAN.NA [Gloucester] #:14340 FBB5.15
R:931029/1231Z @:VE3NAV.#EON.ON.CAN.NA [Greely, ON] #:14916 Z:K0A1Z0
R:931029/1315z 9562@VE3IWJ.#EON.ON.CAN.NOAM
R:931029/1123Z @:VE3CDY.#EON.ON.CAN.NOAM [Kingston] #:93738 Z:K7M7G1 FBB5.15
R:931029/0314Z @:VE3KPG.#ECON.ON.CAN.NA [PETERBOROUGH ON] #:38809 Z:K9H6B4 FBB5
R:931029/1103Z @:VE3OY.#SCON.ON.CAN.NA [Toronto] #:40022 Z:M3M2Z5 FBB5.15
R:931029/1050Z @:VE3SNP.#NIAG.ON.CAN Z:L3K3S1 #:119219 $:9310242336.A
R:931029/1025Z @:WA0PTV.#WNY.NY.USA.NA [c]#:100470 Z:14063 FBB5.15
R:931029/1028Z @:KA3SFC.#NWPA.PA.USA.NA [WARREN] FBB5.14d #:69223
R:931029/0107Z @:WA3ZCA.#NWPA.PA.USA.NA [GUYS MILLS] #:9733 Z:16327 FBB5.15
R:931028/2021 18811@W3UDX.#WPA.PA.USA.NOAM
R:931028/1415 36265@WB8LVP.OH.USA.NA
R:931028/1802z 27695@WB8BII.#NEOH.OH.USA.NOAM
R:931028/1720z 3362@WA8WNI.#SEOH.OH.USA.NA
R:931028/1357Z @:WA8GUG.OH.USA.NA Chillicothe #:22748 Z:45601
R:931028/1301Z @:N8GTC.#CIN.IN.USA.NOAM Brookville #:46903 Z:47012
R:931028/1113z 28602@W9OJ.IN.USA.NA
R:931028/1054z 21475@N5CEC.IN.USA.NA
R:931028/0228Z @:KK9G.#CEIN.IN.USA.NA [Indianapolis,In.] #:21179
R:931028/0231Z @:N5AAA.#CEIN.IN.USA.NA [Noblesville] #:34801
R:931027/1154Z @:KD9LP.#NCIN.IN.USA.NA [Amboy] #:26022 Z:46911 FBB5.15
R:931027/0918Z @:NU9H.#NWIN.IN.USA.NA [MIDWEST SATGATE] #:15557
R:931025/2235z @:WA8URE.#SWMI.MI.USA.NA Grand Rapids #:35721 Z:49508

STS-58 Keps (Orbit 58)

STS-58 element set JSC-010 (orbit 53)

STS-58
1 22869U 93 65 A 93294.86836529 .00191327 00000-0 25999-3 0   108
2 22869 39.0211 107.4394 0004523 319.1598 40.8836 15.96428488   535

Satellite: STS-58
Catalog number: 22869
Epoch time: 93294.86836529 = (21 OCT 93 20:50:26.76 UTC)
Element set: 010
Inclination: 39.0211 deg
RA of node: 107.4394 deg
Eccentricity: .0004523
Arg of perigee: 319.1598 deg
Mean anomaly: 40.8836 deg
Mean motion: 15.96428488 rev/day
Decay rate: 1.91327e-03 rev/day~2
Epoch rev: 53
Checksum: 331

Space Shuttle Flight STS-58
Keplerian Element set JSC-010
from NASA flight Day 4 vector

G. L. Carman
NASA Johnson Space Center

G.L.CARMAN

********** STS-58 STATE VECTOR**********

FLIGHT DAY 5 STATE VECTORS
ON ORBIT OPERATIONS
(Posted 10/22/93 by Roger Simpson)

The following vector for the flight of STS-58 is provided by NASA Johnson Space Center, Flight Design and Dynamics Division for use in ground track plotting programs. The vector represents the trajectory of Columbia during on orbit operations.

Lift off Time : 1993/291/14:53:09.974
Lift off Date : 10/18/93

Vector Time (GMT) : 295/14:00:00.00
Vector Time (MET) : 003/23:06:50.030
Orbit Count : 64
Weight : 242925.0 LBS
Drag Coefficient : 2.00
Drag Area : 3000.0 SQ FT

M50 Elements			Keplerian Elements	
X =	-2637440.4	FT	A	= 3600.1079 NM
Y =	-20942782.5	FT	E	= 0.001033
Z =	5675641.8	FT	I (M50)	= 39.27150 DEG
Xdot =	19697.390013	FT/S	Wp (M50)	= 113.55002 DEG
Ydot =	-6469.479637	FT/S	RAAN (M50)	= 102.02088 DEG
Zdot =	-14650.898454	FT/S	N (True)	= 42.23202 DEG
		Anomalies	M (Mean)	= 42.15251 DEG

```
                                        Ha          = 155.421   NM
                                        Hp          = 150.294   NM


 Mean of 1950 (M50)   : Inertial, right-handed Cartesian system whose
 Coordinate System      origin is the center of the earth.  The epoch
                        is the beginning of the Besselian year 1950.
                        X axis: Mean vernal equinox of epoch
                        Z axis: Earth's mean rotational axis of epoch
                        Y axis: Completes right-hand system
 A:    Semi-major axis
 E:    Eccentricity                          N:    True anomaly
 I:    Inclination                           M:    Mean anomaly
 Wp:   Argument of perigee                   Ha:   Height of apogee
 RAAN: Right ascension of ascending node     Hp:   Height of perigee

 Columbia will perform a 14 fps retrograde orbit adjust maneuver at
 5/06:50 MET.  The next state vector update will be performed after this
 maneuver has been completed.

 Questions regarding these postings may be addressed to Roger Simpson,
 Mail Code DM4, L.  B. J.  Space Center, Houston, Texas 77058,

 POSTED BY SSTICH AT VMSPFHOU ON VMSPFHOU.VMBOARDS:PAONEWS
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Ron Pogue (KD9QB)   Primary Internet Address: a66rmp%andv02@gmr.com
CIS: 71036,1001   AMSAT Internet Address: kd9qb@AmSat.org
Fax: 1-317-773-1463 (24Hrs)   Alternate Internet Address: rpogue@gmr.com
Home: 1-317-773-4936 (7-9PM EST)   Packet Address: kd9qb@wj9u.in.usa.na

---

Date: 2 Nov 93 17:58:48 EST
From: psinntp!arrl.org@uunet.uu.net
Subject: Studying in San Francisco
To: info-hams@ucsd.edu

In rec.radio.amateur.misc, CSLE87@maccvm.corp.mot.com (Karl Beckman) writes:
>
>I guess I'm not understanding the most basic part of this issue.
>How much of an advantage does a huge whip offer over, say, a Diamond
>roof-top (3 db gain on 2 meters, 5 db gain on 70 cm) antenna?

This really depends on where the signal has to go. Often, gain is
achieved at the horizon by sacrificing it in other directions.
This isn't a bad compromise where the land is flat.

But, a lot of gain at the horizon may not be helpful in hilly terrain. A low gain antenna that puts out signal in the direction of a repeater when you are going up and down hills is likely to be more useful than one that is only optimum at peaks and valleys. At the peaks of hills, you don't really need a lot of gain, while beaming your signal straight into a hill isn't likely to be productive either.

Thus, people in hilly terrain often stick with 1/4 wave whips, while higher gain antennas may be more popular where the land is flat. Also, lower frequencies (6M vs. 2M etc.) tend to work better, propagation wise, with hilly terrain (assuming mobile operation).

Zack Lau KH6CP/1

Internet: zlau@arrl.org "Working" on 24 GHz SSB/CW gear
Operating Interests: 10 GHz CW/SSB/FM
US Mail: c/o ARRL Lab 80/40/20 CW
225 Main Street Station capability: 1.8 MHz to 10 GHz
Newington CT 06111 modes: CW/SSB/FM/packet
amtor/baudot
Phone (if you really have to): 203-666-1541

Date: 3 Nov 93 07:29:07
From: swrinde!gatech!europa.eng.gtefsd.com!library.ucla.edu!news.mic.ucla.edu!unixg.ubc.ca!nntp.cs.ubc.ca!mprgate!newshost!gjernes@network.ucsd.edu
Subject: Test equipment, duplexers for sale
To: info-hams@ucsd.edu

November 3, 1993

I don't know if my last post went out when I put distribution as NA. Does this not mean North America?

I quote the following equipment in Canadian dollars. Of course, I will accept US dollars at the going exchange rate and conversion fee. For convenience, I've put the US price (using 78 cents per Canadian $ exchange rate) beside the Canadian price. The US figure will change with exchange rate. Shipping is not included in the price.

VHF Sinclair Model Q202 duplexer
4 7-inch cavities
About 75dB isolation
Tuned to the frequencies of your choice

Very good condition. $400 Can, $312 US

UHF Sinclair Model Q3220-E duplexer
Newer style Rectangular with 4 cavities
I think about 80dB isolation
Tuned to the frequencies of your choice
Excellent condition. $500 Can, $390 US

HP 8654A Signal Generator
Frequency Range: 10 MHz to 520 MHz
Amplitude Output: +10 to -130 dBm calibrated power output
Modulation: AM and FM modulation
Size: 7" x 10.5" x 12"
Excellent Condition
Price: $500 Canadian, $390 US

HP 3200B VHF Oscillator
Frequency Range: 10 MHz to 500 MHz
Amplitude Output: up to +20 dBm uncalibrated
Modulation: CW, AM and Pulse modulation
Size: 7" x 8" x 12"
Good Condition
Price: $200 Canadian, $156 US

HP 5382A 225 MHz Frequency Counter
Frequency Range: 0 MHz to 225 MHz (actually near 300 MHz)
Number of digits: 8 LED
Gate Time: .1s, 1s, 10s
Attenuator: x1, x10, x100
Good Condition
Price: $250 Canadian, $195 US

Radiometer Copenhagen Type AFM2 Modulation Meter
AM and FM modulation
7 MHz - 1 GHz
Good condition. $250 Canadian, $195 US

FM/AM Modulation Meter Marconi TF2303
25 MHz - 520 MHz
Good Condition. $250 Can, $195 US

HP 3550B Test Set (Audio)
Includes:
HP204C Audio Generator
5 Hz to 1.2 MHz
600 ohm output
HP 353A Patch Panel
0 to 110 dB attenuator in 1 dB steps

135, 600, 900 ohm, and bridge impedences
HP 403B Audio RMS voltmeter
.001 to 300 Volts (-50 to +50 dB)
600 ohm input
Excellent condition. $350 Can, $273 US

Spectronic Power Supply model SPS 40-10
Variable Voltage limiting from 0-40 volts
Variable current limiting from 0-10 amps
About 19" wide, 11" tall, 12" deep. and Heavy
Good condition. $150 Canadian, $117 US

Harrison Laboritories 810B Power Supply
Variable Voltage limiting from 0-60 volts
Variable current limiting from 0-7.5 amps
About 19" wide, 5.25" tall, 17" deep. and Heavy
Good condition. $150 Canadian, $117 US

Phillips PM3233 Oscilloscope
Portable Oscilloscope
10 MHz Oscilloscope, rise time 35 nanoseconds
2 channel Dual Beam
2 mV/div - 10 volts/div on channels 1 and 2
Vertical vernier permits continuous adjustment between steps
Triggering: Auto, Line, AC, DC, or Television
calibrated sweeps from .5 sec/div - 0.2 microsec/div
A x5 magnifier allows each sweep rate to be increased
Copy of service manual included
1 probe included
Good condition. $250 Can, $195 US

HP 1703A
DC-35 MHz Portable Oscilloscope
10 mV/div - 5 Volts/div on channels 1 and 2
Vertical vernier permits continuous adjustment between steps
Auto, normal, single sweep triggering
delayed time base
calibrated sweeps from 2 sec/div - 0.1 microsec/div
A x10 magnifier allows each sweep rate to be increased 10x for 10 nanosec/div
1 Probe included
This is a "Storage" Oscilloscope, but the storage is below specification, but is still good for low frequency storage, and excellent in non-storage mode.
Very good condition. $350 Can, $273 US

HP 1707A
75 MHz Oscilloscope: 2 channel, delayed time base.
Portable Oscilloscope

Dual channel
10 mV/div - 5 volts/div on channels 1 and 2
Vertical vernier permits continuous adjustment between steps
Auto, normal, single sweep triggering
calibrated sweeps from 0.2 sec/div - 0.1 microsec/div
A x10 magnifier allows each sweep rate to be increased 10x for 10 nanosec/div
delayed time base
Delayed and mixed sweep
Calibrated X-Y measurement supported
Can be operated from battery or AC lines
Power consumption is 45 watts
Copy of service manual included
60 MHz Tektronix P6120 probe included
Very good condition. $450 Can, $351 US

Tektronix 7613 Lab Storage Oscilloscope
7B53A Dual Time Base for 100 MHz scope
7A18 Dual Channel Vertical Amplifier
5 mV/div - 5 volts/div on channels 1 and 2
Vertical vernier permits continuous adjustment between steps
Auto, normal, single sweep triggering
calibrated sweeps from 5 sec/div - 50 nanosec/div
A x10 magnifier allows each sweep rate to be increased 10x for 1 nanosec/div
delayed time base
Delayed and mixed sweep
Calibrated X-Y measurement supported
60 MHz Tektronix P6120 probe included
Good condition. $500 Can, $390 US

Tektronix 7623 Lab Storage Oscilloscope
7B53AN Dual Time Base for 100 MHz scope
7A18N Dual Channel Vertical Amplifier
5 mV/div - 5 volts/div on channels 1 and 2
Vertical vernier permits continuous adjustment between steps
Auto, normal, single sweep triggering
calibrated sweeps from 5 sec/div - 50 nanosec/div
A x10 magnifier allows each sweep rate to be increased 10x for 1 nanosec/div
delayed time base
Delayed and mixed sweep
Calibrated X-Y measurement supported
60 MHz Tektronix P6120 probe included
Good condition. $450 Can, $351 US

Phillips PM3260 Oscilloscope
Portable Oscilloscope
120 MHz Oscilloscope: 2 channel, delayed time base,
Dual channel
DC-120 MHz vertical system

  5 mV/div - 2 volts/div on channels 1 and 2
  Vertical vernier permits continuous adjustment between steps
  Auto, normal, single sweep triggering
  calibrated sweeps from 1 sec/div - 0.05 microsec/div
  A x10 magnifier allows each sweep rate to be increased 10x for 5 nanosec/div
  delayed time base
  Delayed and mixed sweep
  Calibrated X-Y measurement supported
  Power consumption is 45 watts
  Copy of service manual included
  100 MHz Tektronix P6105 probe included
  active probe power receptacles.
  Excellent condition. $550 Can, $429 US

Tektronix 475A Oscilloscope
  Portable Oscilloscope
  With DM44 option DVM on top for reading time differences, frequency, and a
    general purpose VOLT OHM AMP meter showing dual high intensity markers for
    time difference or frequency measurements.
  Dual channel
  DC-250 MHz vertical system
  5 mV/div - 100 volts/div on channels 1 and 2
  Vertical vernier permits continuous adjustment between steps
  Dual Bandwidth limit switch allows viewing of low-frequency, low-level
    signals with reduced interference from signals above 20 or 100 MHz
  Auto, normal, single sweep triggering
  calibrated sweeps from 5 sec/div - 10 nanosec/div
  A x10 magnifier allows each sweep rate to be increased 10x for 1 nanosec/div
  delayed time base
  Delayed and mixed sweep
  Calibrated X-Y measurement supported
  active probe power receptacles
  Copy of service manual included
  300 MHz Tektronix P6106 probe included
  Time base knob is a little flakey. $700 Can, $546 US

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Date: Wed, 3 Nov 1993 04:13:53 GMT
From: swrinde!cs.utexas.edu!utnut!torn!nott!uotcsi2!revcan!rubicon!
cowan@network.ucsd.edu
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References <199310261649.JAA01502@ucsd.edu>,
<cdm006-271093075713@magerlmac1.comm.mot.com>, <62968@oasys.dt.navy.mil>
Subject : Re: BAUD VS BAUDS

In article <62968@oasys.dt.navy.mil> kstuart@oasys.dt.navy.mil (Kenneth Stuart)
writes:
>Well, someone can follow up on this comment, but when I got started
>in digital, back in the 6502 era, BPS represented the number of actual
>BITS being transmitted, including start and stop bits, and BAUD represented
>only the number of DATA bits being transmitted. Therefore, a word format
>of 8 data bits plus one start and one stop bit (10 bit total) being
>sent at 100 BPS would actually have a BAUD rate of only 80.
>
>Of course, this is assuming standard RS-232, etc.
>
>Any comments, corrections on this? Let's hear from the group.

To the best of my knowledge, the definition has never changed. A bit is the
basic unit of digital information, and a baud is a state change. Thus if
you send 2400 bits in 1 second, you are sending 2400 bits per second... but if
in order to send those bits you have a collection of states, each of which
represents 4 bits, you will send the information at 600 baud. This is what
actually happens in a 2400 bps modem with Quadrature Amplitude Modulation (e.g.
a normal 2400 bps modem).

The confusion arose as equipment got faster than 300 bps (which was also 300
baud - 1 bit per baud). 1200 bps modems were/are really 600 baud,
encoding 2 bits per baud. QAM was developed and has 16 states to encode 4 bits
per baud - allowing the development of 2400 bps modems for use in the 3kHz
bandwidth of a voice telephone line - and still 600 baud.

I believe V32bis encodes 6 bits per baud on a 2400 baud signal for throughput
of 14400 bits per second.

Generally on RS-232 links, bits/sec == baud. This is because on RS-232 there
is but 2 states - 1 and 0 - and thus only a single bit can be sent with any
state change.

End of Info-Hams Digest V93 #1310
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